

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1 and 2 are amended. After amending the claims as set forth above, claims 1-50 remain pending in this application, with claims 5-48 being withdrawn.

Applicants appreciate the Examiner's careful consideration of the claims.

Claim Rejections – 35 U.S.C. § 112

Claims 1-4, 49, and 50 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 1 and 2 are amended to eliminate the limitation “wherein the housing insert forming the labyrinth seal path with the first housing portion is provided as a single piece,” rendering the rejection moot.

Claim Rejections – 35 U.S.C. § 102

Claims 1-4, 49, and 50 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,585,092 (“Smith”) and as allegedly being anticipated by U.S. Patent No. 5,960,918 (“Moser”). Applicants respectfully traverse these rejections for at least the following reasons.

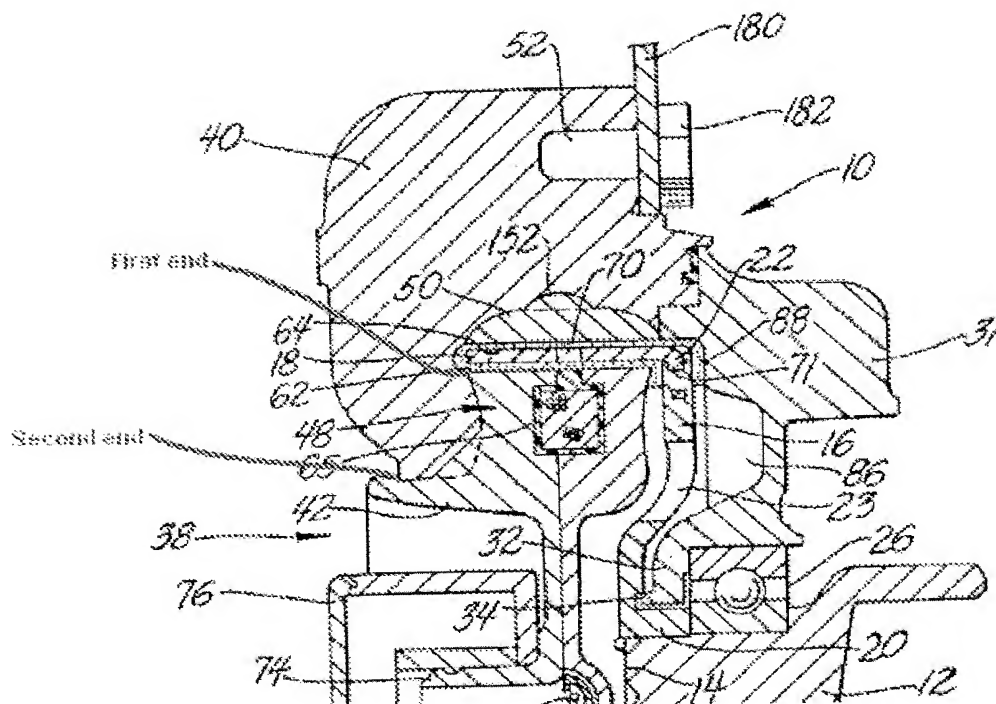
Claim 1, as amended, recites a viscous fluid clutch, comprising an annular housing insert comprising a wheel portion and a ring portion, the ring portion being separated from the wheel portion by a slot; a housing including a first housing portion provided around the housing insert and a second housing portion connected to the first housing portion and defining a fluid reservoir contained by the first and second housing portions; and a labyrinth seal path formed between the wheel portion of the housing insert and the first housing portion, the labyrinth seal path having a first end and a second end that each communicates with the fluid reservoir, such that any fluid entering the labyrinth seal path is returned to the fluid reservoir between the first and second housing portions. Claim 2 recites features similar and/or analogous to those in claim 1. Neither Smith nor Moser discloses or teaches the features of claims 1 and 2.

For example, neither Smith nor Moser discloses or teaches “a labyrinth seal path formed between the wheel portion of the housing insert and the first housing portion, the labyrinth seal path having a first end and a second end that each communicates with the fluid reservoir, such that any fluid entering the labyrinth seal path is returned to the fluid reservoir between the first and second housing portions,” as recited in claim 1. The present Specification explains:

As shown in Fig. 1, both ends of the labyrinth seal path 54a lead to the reservoir 16. Thus, MRF in the reservoir 16 that leaks into one end of the labyrinth seal path 54a will exit at the other end of the labyrinth seal path 54a back into the reservoir 16. The labyrinth seal path 54a preferably includes a first end 54b disposed proximate the slot 12 near the second end 34 of the rotor 30 and a second end 54c disposed near a central portion 80a of the coil assembly 80. . . .

See Specification (as filed) at paragraph [0077].

With respect to Smith, the Office alleges that the path between the fan cover body 40 and the inner wheel portion 48 in Smith corresponds to the labyrinth seal path of claims 1 and 2. However, only *one of the two ends* of this path in Smith communicates with the fluid reservoir of Smith. Specifically, the end labeled “first end” in the annotated version of Fig. 1 provided by the Office communicates with the reservoir of Smith. The end labeled “second end” in the annotated version of Fig. 1 does not communicate with the reservoir. Rather, the second end of the path of Smith communicates with a space *outside the fan drive assembly*, as shown below.

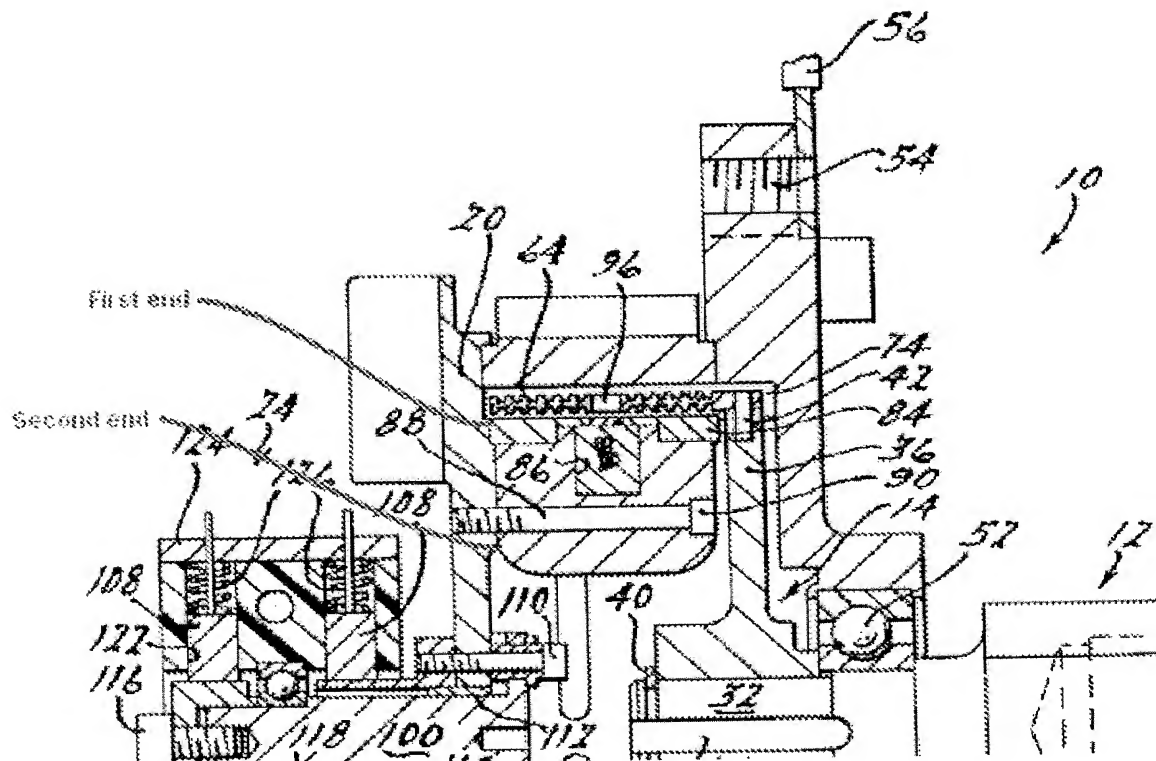


In Smith, any fluid entering the path between the fan cover body 40 and the inner wheel portion 48 through the first end would simply leak out of the fan drive assembly through the second end. This is exactly what the labyrinth seal configuration of claim 1 and 2 is trying to avoid. Thus, contrary the Office's assertion, the structure of the clutch assembly of Smith is *not* substantially identical to that of the claims, as Smith does not disclose or teach "a labyrinth seal path formed between the wheel portion of the housing insert and the first housing portion, the labyrinth seal path having *a first end and a second end that each communicates with the fluid reservoir*, such that any fluid entering the labyrinth seal path is returned to the fluid reservoir between the first and second housing portions," as recited in claim 1, or the similar structure recited in claim 2.

With respect to Moser, the Office alleges that the path between the coil body 80 and the main housing 20, combined with the path between the coil rings 84 and the main housing 20, corresponds to the labyrinth seal path of claims 1 and 2. See Office Action at page 8. Claim 1, as amended, recites a labyrinth seal path formed between the *wheel portion of the housing insert and the first housing portion*. Claim 2 recites a similar feature. The coil body 80 and coil rings 84 are not a "housing insert," much less a "wheel portion of a housing

insert.” Moser does not, in fact, disclose or teach a housing insert of any kind, much less a housing insert comprising “a wheel portion and a ring portion, the ring portion being separated from the wheel portion by a slot,” as required by claims 1 and 2. Because Moser does not teach a housing insert of any kind, it certainly does not teach a labyrinth seal path formed between the wheel portion of a housing insert and the first housing portion.

Furthermore, even if the coil body 80 and coil rings 84 were considered a housing insert (a point that Applicants do not concede), Moser does not disclose or teach “the labyrinth seal path having a first end and a second end that each communicates with the fluid reservoir, such that *any fluid entering the labyrinth seal path is returned to the fluid reservoir between the first and second housing portions*,” as recited in claim 1. As shown in the annotated version of Figure 1 of Moser, provided by the Office, the main housing 20 of Moser has a plurality of bolts 90 extending through the housing.



In Moser, fluid that enters the path between the coil body 80 and the main housing 20 can simply leak through the bolt holes. Again, this is one problem that the configuration of claims 1 and 2 tries to address, as explained in the Specification:

Another disadvantage of conventional MRF clutches is that such clutches have proven to not be sufficiently robust for application in vehicles. For example, such clutches may include leak paths that enable the magnetorheological fluid to escape from the clutch as the MRF seeps into an internal porous portion of the cast aluminum fan cover body. *Although the shell (or skin) of the casting generally prevents the fluid from leaking beyond the internal porous portion of the casting, bolt holes for attachment of the fan blade hub include machined threads. The machining process breaches the shell of the casting (which is created during the casting process) to expose the internal porous portion thereby providing a leak path for the escape of the magnetorheological fluid.*

See Specification (as filed) at paragraph [0008] (emphasis added). Thus, contrary the Office's assertion, the structure of the clutch assembly of Moser is *not* substantially identical to that of the claims, as Moser does not disclose or teach "a labyrinth seal path formed between the wheel portion of the housing insert and the first housing portion, the labyrinth seal path having a first end and a second end that each communicates with the fluid reservoir, such that any fluid entering the labyrinth seal path is returned to the fluid reservoir between the first and second housing portions," as recited in claim 1, or the similar and/or analogous structure recited in claim 2.

Claims 3, 4, 49, and 50 depend from claims 1 and 2, and are patentable for at least the same reasons as claims 1 and 2, even without regard for the further patentable features recited therein.

For at least these reasons, Applicants respectfully request favorable reconsideration of the rejections.

Concluding Remarks

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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